Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A ceramic circuit structure having a plurality of ceramic layers ~~and at least one electronic component embedded within the plurality of ceramic layers~~, wherein a first one of the ceramic layers comprises:

a through-hole that passes through the first ceramic layer, the through-hole being filled with a first electrically conductive material, which forms a via;

a contact pad formed on a surface of the first ceramic layer, the contact pad formed from a second electrically conductive material that is different from the first electrically conductive material;

a barrier cap formed in contact with and between the via and the contact pad such that the barrier cap is encapsulated within the first ceramic layer, the barrier cap being formed from a third electrically conductive material that is different from the first and second electrically conductive materials; and

a dielectric ring covering a peripheral portion of the contact pad and an adjacent portion of the dielectric material layer surface immediately surrounding the contact pad, such that any solder that is applied to the contact does not contact the peripheral portion of the contact pad or the ceramic material.

2. (currently amended): A ceramic circuit structure as recited in claim 1 wherein the barrier cap is configured to prevents the first electrically conductive material within the through-hole from making contact with the second electrically conductive material forming the contact pad.

3. A ceramic circuit structure as recited in claim 1 wherein the ring of dielectric material is formed of glass.

4. A ceramic circuit structure as recited in claim 1 wherein the ring of dielectric material is partially embedded within the surface of the first ceramic layer.

5. A ceramic circuit structure as recited in claim 1 wherein the ceramic circuit structure is mounted onto a printed circuit board, and wherein the first ceramic layer of the plurality of ceramic layers is directly adjacent to the printed circuit board.

6. A ceramic circuit structure as recited in claim 1 wherein the contact pad is embedded within the surface of the first ceramic layer such that a surface of the contact pad is flush with the surface of the first ceramic layer.

7. A ceramic circuit structure as recited in claim 1 wherein the first electrically conductive material filling the through-hole is palladium-silver, the second electrically conductive material forming the contact pad is platinum-gold, and the third electrically conductive material forming the barrier cap is gold.

8. (currently amended): A ceramic circuit structure having a plurality of ceramic layers ~~and at least one electronic component embedded within the plurality of ceramic layers~~, wherein a first one of the ceramic layers comprises:

a through-hole that passes through the first ceramic layer, the through-hole being filled with a first electrically conductive material, which forms a via;

a catch pad formed at one end of the via;

a contact pad embedded within a surface of the first ceramic layer such that a surface of the contact pad is flush with the surface of the first ceramic layer, the contact pad formed from a second electrically conductive material that is different from the first electrically conductive material; and

a barrier cap formed in contact with and between the catch pad and the contact pad such that the barrier cap is encapsulated within the first ceramic layer, the barrier cap being formed from a third electrically conductive material that is different from the first and second electrically conductive materials.

9. A ceramic circuit structure having as recited in claim 8 further comprising:

a dielectric ring covering a peripheral portion of the contact pad and an adjacent portion of the dielectric material layer surface immediately surrounding the contact pad, such that any solder that is applied to the contact does not contact the peripheral portion of the contact pad or the ceramic material.

10. (currently amended): A ceramic circuit structure as recited in claim 8 wherein the barrier cap is configured to prevents the first electrically conductive material within the through-hole from chemically reacting with the second electrically conductive material forming the contact pad.

11. A ceramic circuit structure as recited in claim 9 wherein the ring of dielectric material is formed of glass.

12. A ceramic circuit structure as recited in claim 8 wherein the ceramic circuit structure is mounted onto a printed circuit board, and wherein the first ceramic layer of the plurality of ceramic layers is directly adjacent to the printed circuit board.

14. A ceramic circuit structure as recited in claim 8 wherein the first electrically conductive material filling the through-hole is palladium-silver, the second electrically conductive material forming the contact pad is platinum-gold, and the third electrically conductive material forming the barrier cap is gold.

15. (currently amended): A ceramic circuit structure having a plurality of ceramic layers ~~and at least one electronic component embedded within the plurality of ceramic layers~~, wherein a first one of the ceramic layers comprises:

a through-hole that passes through the first ceramic layer, the through-hole being filled with a first electrically conductive material, which forms a via;

a contact pad formed on a surface of the first ceramic layer, the contact pad formed from a second electrically conductive material that is different from the first electrically conductive material; and

a dielectric ring covering a peripheral portion of the contact pad and an adjacent portion of the dielectric material layer surface immediately surrounding the contact pad, such that any solder that is applied to the contact does not contact the peripheral portion of the contact pad or the ceramic material, and such that the dielectric ring does not cover any other contact pad.

16. A ceramic circuit structure as recited in claim 15 wherein the ring of dielectric material is formed of glass.

17. A ceramic circuit structure as recited in claim 15 wherein the ring of dielectric material is partially embedded within the surface of the first ceramic layer.

18. A ceramic circuit structure as recited in claim 15 wherein the ceramic circuit structure is mounted onto a printed circuit board, and wherein the first ceramic layer of the plurality of ceramic layers is directly adjacent to the printed circuit board.

19. A ceramic circuit structure as recited in claim 15 wherein the contact pad is embedded within the surface of the first ceramic layer such that a surface of the contact pad is flush with the surface of the first ceramic layer.

25. (previously presented): A ceramic circuit structure as recited in claim 1, further comprising:

a solder ball formed within the dielectric ring.

26. (previously presented): A ceramic circuit structure as recited in claim 8, further comprising:

a solder ball formed within the dielectric ring.

27. (previously presented): A ceramic circuit structure as recited in claim 15, further comprising:

a solder ball formed within the dielectric ring.